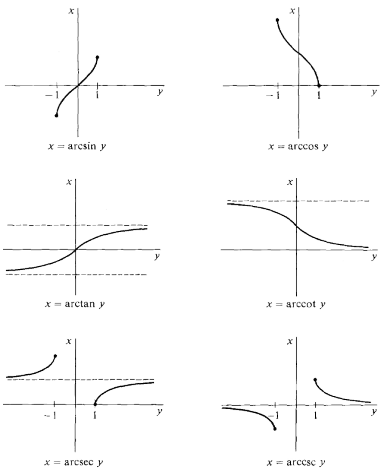
Trig. Unit 3.13-3.16 Outline

Name _____ **Date** _____**Period** _____

Learning Target	Assessment	M.L. 4	M.L. 3	M.L. 2	M.L. 1
1. I can evaluate an inverse trig. expression. Ex $\sin^{-1}\left(\frac{1}{2}\right)$	**3.13 Worksheet** **3.13-3.14 Quiz** **3.13-3.16 Review** **3.13-3.14 Test**				
2. I can use technology to evaluate solutions.	**3.13 Worksheet** **3.13-3.14 Quiz** **3.13-3.16 Review** **3.13-3.16 Test**				
3. I can evaluate a trig. composition. Ex $\cos\left(\sin^{-1}\left(\frac{1}{2}\right)\right)$	**3.13 Worksheet** **3.13-3.14 Quiz** **3.13-3.14 Review** **3.13-3.14 Test**				
4. I can find all solutions for equations involving trig. functions.	**3.14 Worksheet** **3.13-3.14 Quiz** **3.13-3.16 Review** **3.13-3.16 Test**				
5. I can solve trig. equations involving multiple angles and half angles.	**3.15 Worksheet** **3.15-3.16 Quiz** **3.13-3.16 Review** **3.13-3.16 Test**				
6. I can solve trig. equations that are of quadratic type.	**3.16 Worksheet** **3.15-3.16 Quiz** **3.13-3.16 Review** **3.13-3.16 Test**				

Mastery Level 4 = I've got this - I can teach this to others. **Mastery Level 3** = I understand - I can do this by myself.
Mastery Level 2 = I mostly get it - I can do this with help. **Mastery Level 1** = I don't understand - I cannot do this yet.



Solving Trig Problems with Multiple Angles – General Solutions

$\tan(3\theta)=\sqrt{3}$

$3\theta=\frac{\pi}{3}+\pi k \quad 3\theta=\frac{4\pi}{3}+\pi k$

Note that (by looking at Unit Circle) this can be simplified to

$3\theta=\frac{\pi}{3}+\pi k$

$\left\{\theta\,|\,\theta=\frac{\pi}{9}+\frac{\pi}{3}k\right\}$

$2\cos(3x)+\sqrt{3}=0$

$\cos(3x)=-\frac{\sqrt{3}}{2}$

$3x=\frac{5\pi}{6}+2\pi k \quad 3x=\frac{7\pi}{6}+2\pi k$

$\left\{x\,|\,x=\frac{5\pi}{18}+\frac{2}{3}\pi k,\ x=\frac{7\pi}{18}+\frac{2}{3}\pi k\right\}$

$\sqrt{2}\sec\left(\frac{x}{6}\right)-2=0$

$\sec\left(\frac{x}{6}\right)=\frac{2}{\sqrt{2}} \quad \left(\cos\left(\frac{x}{6}\right)=\frac{\sqrt{2}}{2}\right)$

$\frac{x}{6}=\frac{\pi}{4}+2\pi k \quad \frac{x}{6}=\frac{7\pi}{4}+2\pi k$

$x=\frac{6\pi}{4}+12\pi k \quad x=\frac{42\pi}{4}+12\pi k$

$\left\{x\,|\,x=\frac{3\pi}{2}+12\pi k,\ x=\frac{21\pi}{2}+12\pi k\right\}$

$5\cos^2\left(\frac{\theta}{3}\right)=5$

$\sqrt{\cos^2\left(\frac{\theta}{3}\right)}=\sqrt{1}$

$\cos\left(\frac{\theta}{3}\right)=\pm1$

$\frac{\theta}{3}=0+2\pi k \quad \frac{\theta}{3}=\pi+2\pi k$

Note that (by looking at Unit Circle) this can be simplified to

$\frac{\theta}{3}=\pi k$

$\{\theta\,|\,\theta=3\pi k\}$

$2\sin^2(2x)=1$

$\sin^2(2x)=\frac{1}{2}$

$\sqrt{\sin^2(2x)}=\sqrt{\frac{1}{2}}$

$\sin(2x)=\pm\frac{1}{\sqrt{2}}=\pm\frac{\sqrt{2}}{2}$

$2x=\frac{\pi}{4}+2\pi k \quad 2x=\frac{3\pi}{4}+2\pi k$

$2x=\frac{5\pi}{4}+2\pi k \quad 2x=\frac{7\pi}{4}+2\pi k$

Note that (by looking at Unit Circle) this can be simplified to

$2x=\frac{\pi}{4}+\pi k \quad 2x=\frac{3\pi}{4}+\pi k$

$\left\{x\,|\,x=\frac{\pi}{8}+\frac{\pi}{2}k,\ x=\frac{3\pi}{8}+\frac{\pi}{2}k\right\}$

$\tan\left(\frac{\theta}{2}-\frac{\pi}{3}\right)=-1$

$\frac{\theta}{2}-\frac{\pi}{3}=\frac{3\pi}{4}+\pi k \quad \frac{\theta}{2}-\frac{\pi}{3}=\frac{7\pi}{4}+\pi k$

Note that (by looking at Unit Circle) this can be simplified to

$\frac{\theta}{2}-\frac{\pi}{3}=\frac{3\pi}{4}+\pi k$

$\frac{\theta}{2}=\left(\frac{3\pi}{4}+\frac{\pi}{3}\right)+\pi k$

$\frac{\theta}{2}=\frac{13\pi}{12}+\pi k$

$\left\{\theta\,|\,\theta=\frac{13\pi}{6}+2\pi k\right\}$ or $\left\{\theta\,|\,\theta=\frac{\pi}{6}+2\pi k\right\}$